

Peterka T., Hájková P., Jiroušek M., Hinterlang D., Chytrý M., Aunina L., Deme J., Lyons M., Seiler H., Zechmeister H., Apostolova I., Beierkuhnlein C., Bischof M., Biță-Nicolae C., Brancaleoni L., Čušterevska R., Dengler J., Didukh Ya., Dítě D., Felbaba-Klushyna L., Garbolino E., Gerdol R., Iemelianova S., Jansen F., Juutinen R., Kamberović J., Kapfer J., Klímová B., Knollová I., Kolari T. H. M., Lazarević P., Luostarinen R., Mikulášková E., Milanović Đ., Miserere L., Moeslund J. E., Molina J. A., Pérez-Haase A., Petraglia A., Puglisi M., Ruprecht E., Šmerdová E., Spitale D., Tomaselli M., Vassilev K. & Hájek M. (2023) Formalized classification of the class *Montio-Cardaminetea* in Europe: towards a consistent typology of spring vegetation. – *Preslia* 95: 347–383.

Supplementary Data S5. Results of unsupervised classification of regional subsets.

Diagnostic species are those with the *phi* coefficient above 0.25, highly diagnostic with *phi* above 0.5 (in bold). Constant species are those with frequency above 25% in the cluster, highly constant above 50% (in bold). Dominant species reach a cover of 25% in at least 25% of plots.

1. the Alps

1.1 Isopam

Cluster 1

Interpretation: *Philonotidion seriatae*, cluster 1

Plot sizes: 0.25–20 m²

Number of relevés: 104

Diagnostic species: *Blindia acuta*, *Dichodontium palustre*, *Luzula alpinopilosa*, *Marsupella emarginata*, *Philonotis seriata*, *Racomitrium sudeticum*, *Scapania irrigua*, *Scapania uliginosa*, *Scapania undulata*, *Solenostoma obovatum*

Constant species: ***Blindia acuta***, *Bryum pseudotriquetrum* agg., *Carex frigida*, *Cirsium spinosissimum*, ***Deschampsia cespitosa***, *Dichodontium palustre*, *Ligusticum mutellina*, *Luzula alpinopilosa*, ***Philonotis seriata***, ***Saxifraga stellaris***, ***Scapania undulata***, *Warnstorfia exannulata*

Dominant species: -

Cluster 2

Interpretation: *Philonotidion seriatae*, cluster 2

Plot sizes: 0.25–25 m²

Number of relevés: 62

Diagnostic species: *Carex nigra*, *Dichodontium palustre*, *Epilobium anagallidifolium*, *Eriophorum angustifolium*, *Philonotis seriata*, *Saxifraga stellaris*, *Scapania undulata*, *Warnstorfia exannulata*

Constant species: *Bryum pseudotriquetrum* agg., *Cardamine amara*, *Carex nigra*, ***Deschampsia cespitosa***, *Dichodontium palustre*, *Eriophorum angustifolium*, ***Philonotis seriata***, ***Saxifraga stellaris***, *Scapania undulata*, *Viola biflora*, ***Warnstorfia exannulata***

Dominant species: *Saxifraga stellaris*

Cluster 3

Interpretation: ?

Plot sizes: 0.5–20 m²

Number of relevés: 77

Diagnostic species: *Cirsium spinosissimum*, *Philonotis fontana* agg., *Pohlia wahlenbergii*

Constant species: *Alchemilla vulgaris* agg., *Aneura pinguis*, ***Bryum pseudotriquetrum* agg.**, *Bryum schleicheri*, *Campylium stellatum* agg., *Carex frigida*, *Cirsium spinosissimum*, ***Deschampsia cespitosa***, *Epilobium alsinifolium*, ***Palustriella commutata* agg.**, *Philonotis fontana* agg., *Poa alpina*, *Pohlia wahlenbergii*, *Saxifraga aizoides*, ***Saxifraga stellaris***

Dominant species: -

Cluster 4

Interpretation: *Lycopodo-Cratoneurion commutati*

Plot sizes: 0.5–20 m²

Number of relevés: 54

Diagnostic species: *Eucladium verticillatum*, *Hedera helix* agg., *Hymenostylium recurvirostrum*, *Lactuca muralis*, *Palustriella commutata* agg., *Pellia endiviifolia*

Constant species: *Bryum pseudotriquetrum* agg., *Hymenostylium recurvirostrum*, ***Palustriella commutata* agg.**

Dominant species: -

Cluster 5

Interpretation: *Cratoneurion commutati*, cluster 1

Plot sizes: 0.5–25 m²

Number of relevés: 96

Diagnostic species: *Arabis soyeri*, *Bartsia alpina*, *Bellidiastrum michelii*, *Bistorta vivipara*, *Equisetum variegatum*, *Philonotis calcarea*, *Saxifraga aizoides*, *Soldanella alpina*, *Tofieldia calyculata*

Constant species: *Agrostis stolonifera*, *Arabis soyeri*, *Bellidiastrum michelii*, *Bistorta vivipara*, ***Bryum pseudotriquetrum* agg.**, *Carex frigida*, *Deschampsia cespitosa*, *Epilobium alsinifolium*, *Equisetum variegatum*, ***Palustriella commutata* agg.**, *Philonotis calcarea*, *Philonotis fontana* agg., ***Saxifraga aizoides***, *Saxifraga stellaris*

Dominant species: ***Palustriella commutata* agg.**

Cluster 6

Interpretation: *Cratoneurion commutati*, cluster 2

Plot sizes: 0.25–25 m²

Number of relevés: 191

Diagnostic species: *Palustriella commutata* agg.

Constant species: *Bryum pseudotriquetrum* agg., *Deschampsia cespitosa*, *Epilobium alsinifolium*, ***Palustriella commutata* agg.**, *Saxifraga stellaris*

Dominant species: ***Palustriella commutata* agg.**

Cluster 7

Interpretation: ~ *Cratoneuro filicini-Calthion laetae*

Plot sizes: 0.3–16 m²

Number of relevés: 67

Diagnostic species: *Caltha palustris*, *Palustriella decipiens*, *Ranunculus aconitifolius*

Constant species: *Agrostis stolonifera*, *Bryum pseudotriquetrum* agg., ***Caltha palustris***, *Cardamine amara*, ***Deschampsia cespitosa***, ***Epilobium alsinifolium***, *Palustriella commutata* agg., ***Palustriella decipiens***, *Ranunculus aconitifolius*, *Saxifraga stellaris*

Dominant species: *Palustriella decipiens*

Cluster 8

Interpretation: *Caricion remotae*

Plot sizes: 0.5–6 m²

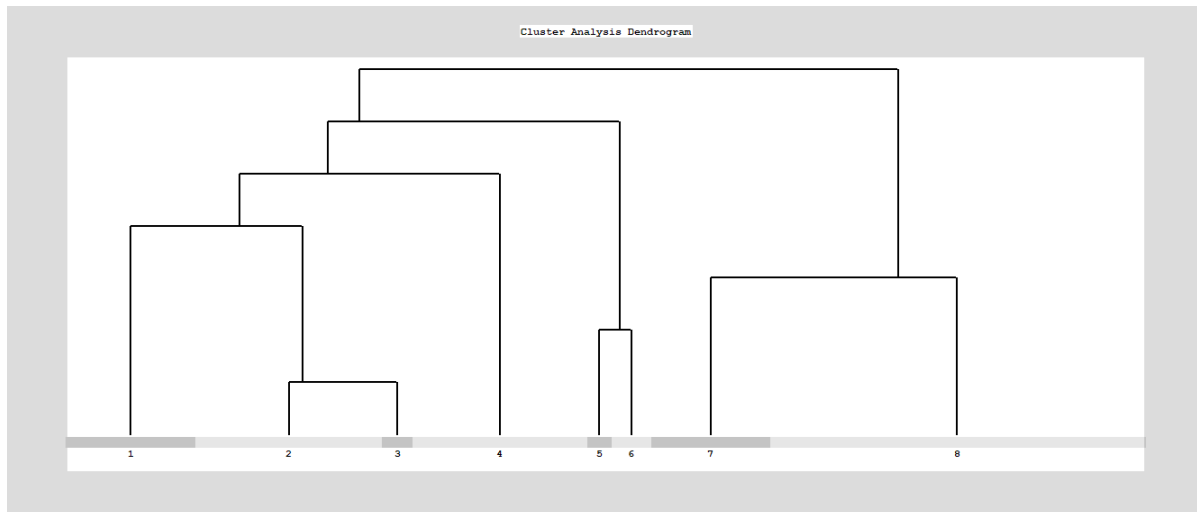
Number of relevés: 57

Diagnostic species: **Brachythecium rivulare**, *Cardamine amara*, *Plagiomnium undulatum*, *Rhizomnium punctatum*, *Stellaria nemorum*

Constant species: **Brachythecium rivulare**, **Cardamine amara**, *Deschampsia cespitosa*, *Epilobium alsinifolium*, *Chaerophyllum hirsutum*, *Rhizomnium punctatum*

Dominant species: *Brachythecium rivulare*, *Cardamine amara*

1.2 Cluster analysis



Cluster 1

Interpretation: ~ *Philonotidion seriatae*, cluster 1

Plot sizes: 0.25–20 m²

Number of relevés: 86

Diagnostic species: *Hygrohypnum diurusculum*, *Jungermannia exsertifolia*, *Pohlia wahlenbergii*, *Schistidium rivulare*

Constant species: *Blindia acuta*, ***Bryum pseudotriquetrum* agg.**, *Hygrohypnum diurusculum*, *Palustriella commutata* agg., *Philonotis seriata*, *Pohlia wahlenbergii*, ***Saxifraga stellaris***, *Schistidium rivulare*

Dominant species: -

Cluster 2

Interpretation: *Philonotidion seriatae*, cluster 2

Plot sizes: 0.25–25 m²

Number of relevés: 127

Diagnostic species: *Carex frigida*, *Deschampsia cespitosa*, ***Dichodontium palustre***, *Juncus jacquinii*, *Ligusticum mutellina*, *Luzula alpinopilosa*, *Nardia compressa*, *Philonotis seriata*, *Primula integrifolia*, *Saxifraga stellaris*, *Scapania irrigua*, *Warnstorfia exannulata*

Constant species: *Blindia acuta*, ***Bryum pseudotriquetrum* agg.**, *Carex frigida*, *Cirsium spinosissimum*, ***Deschampsia cespitosa***, ***Dichodontium palustre***, *Ligusticum mutellina*, *Luzula alpinopilosa*, ***Philonotis seriata***, ***Saxifraga stellaris***, *Scapania undulata*, *Warnstorfia exannulata*

Dominant species: -

Cluster 3

Interpretation: ?

Plot sizes: 0.5–5 m²

Number of relevés: 19

Diagnostic species: *Fontinalis antipyretica*, ***Marsupella emarginata***, ***Scapania undulata***, *Sphagnum rubellum*

Constant species: *Blindia acuta*, *Deschampsia cespitosa*, *Marsupella emarginata*, *Philonotis seriata*, ***Saxifraga stellaris***, ***Scapania undulata***, *Warnstorfia exannulata*

Dominant species: ***Scapania undulata***

Cluster 4

Interpretation: ~ *Cratoneuro filicini-Calthion laetae*

Plot sizes: 0.3–20 m²

Number of relevés: 119

Diagnostic species: ***Caltha palustris***, *Epilobium alsinifolium*, *Equisetum palustre*, *Palustriella decipiens*, *Ranunculus aconitifolius*

Constant species: *Bryum pseudotriquetrum* agg., *Caltha palustris*, *Cardamine amara*, ***Deschampsia cespitosa***, *Epilobium alsinifolium*, *Palustriella commutata* agg., *Palustriella decipiens*, *Saxifraga stellaris*

Dominant species: -

Cluster 5

Interpretation: ?

Plot sizes: 0.5–4 m²

Number of relevés: 15

Diagnostic species: *Hygroamblystegium tenax*, *Hygrohypnum luridum*, ***Platyhypnidium riparioides***

Constant species: *Brachythecium rivulare*, *Hygrohypnum luridum*, *Palustriella commutata* agg., ***Platyhypnidium riparioides***

Dominant species: *Palustriella commutata* agg., ***Platyhypnidium riparioides***

Cluster 6

Interpretation: ~ *Caricion remotae*

Plot sizes: 0.6–6 m²

Number of relevés: 28

Diagnostic species: ***Brachythecium rivulare***, *Cardamine amara*, *Carex remota*, *Geranium robertianum*, *Chaerophyllum hirsutum*, ***Plagiomnium undulatum***, *Stellaria nemorum*

Constant species: ***Brachythecium rivulare***, ***Cardamine amara***, *Chaerophyllum hirsutum*, *Palustriella commutata* agg., *Plagiomnium undulatum*, *Rhizomnium punctatum*

Dominant species: *Brachythecium rivulare*, *Cardamine amara*

Cluster 7

Interpretation: *Lycopodo-Cratoneurion commutati*

Plot sizes: 0.3–10 m²

Number of relevés: 79

Diagnostic species: *Eucladium verticillatum*, *Hedera helix*, *Hymenostylium recurvirostrum*, *Palustriella commutata* agg., *Pellia endiviifolia*, *Schoenus nigricans*

Constant species: *Hymenostylium recurvirostrum*, ***Palustriella commutata* agg.**

Dominant species: ***Palustriella commutata* agg.**

Cluster 8

Interpretation: *Cratoneurion commutati*

Plot sizes: 0.25–25 m²

Number of relevés: 253

Diagnostic species: *Agrostis stolonifera*, *Arabis soyeri*, *Bellidiastrum michelii*, *Bistorta vivipara*, *Bryum pseudotriquetrum* agg., *Equisetum variegatum*, *Palustriella commutata* agg., *Parnassia palustris*, *Philonotis calcarea*, *Saxifraga aizoides*, *Soldanella alpina*, *Tussilago farfara*

Constant species: *Agrostis stolonifera*, *Arabis soyeri*, *Bellidiastrum michelii*, *Bistorta vivipara*, ***Bryum pseudotriquetrum* agg.**, *Deschampsia cespitosa*, *Epilobium alsinifolium*, ***Palustriella commutata* agg.**, *Philonotis fontana* agg., *Saxifraga aizoides*, *Saxifraga stellaris*
Dominant species: ***Palustriella commutata* agg.**

2. Great Britain + Ireland

2.1 Isopam

Cluster 1

Interpretation: ~ *Cratoneurion commutati*

Plot sizes: 0.5–6 m²

Number of relevés: 62

Diagnostic species: *Bistorta vivipara*, *Festuca rubra* agg., *Palustriella commutata* agg., *Saxifraga aizoides*

Constant species: *Agrostis stolonifera*, *Bryum pseudotriquetrum* agg., *Cardamine pratensis* agg., *Carex flacca*, ***Festuca rubra* agg.**, *Geranium robertianum*, ***Palustriella commutata* agg.**, *Pellia endiviifolia*, *Saxifraga aizoides*

Dominant species: *Palustriella commutata* agg.

Cluster 2

Interpretation: ~ *Lycopodo-Cratoneurion commutati*, cluster 1

Plot sizes: 0.3–4 m²

Number of relevés: 33

Diagnostic species: *Cratoneuron filicinum*, *Didymodon tophaceus*, *Eucladium verticillatum*, *Ficaria verna*, *Geranium robertianum*, *Hedera helix* agg., *Palustriella commutata* agg., *Pellia endiviifolia*, *Platyhytnidium riparioides*, *Thamnobryum alopecurum*

Constant species: ***Agrostis stolonifera***, *Brachythecium rivulare*, ***Cratoneuron filicinum***, *Eucladium verticillatum*, *Festuca rubra* agg., *Geranium robertianum*, *Hedera helix* agg., ***Palustriella commutata* agg.**, ***Pellia endiviifolia***

Dominant species: -

Cluster 3

Interpretation: ~ *Lycopodo-Cratoneurion commutati*, cluster 2

Plot sizes: 0.25–9 m²

Number of relevés: 38

Diagnostic species: *Agrostis stolonifera*, *Anagallis tenella*, *Aneura pinguis*, *Breutelia chrysocoma*, *Briza media*, *Bryum pseudotriquetrum* agg., *Calliergonella cuspidata*, *Campylium stellatum* agg., ***Carex flacca***, *Carex flava* agg., *Carex panicea*, *Centaurea nigra*, *Cirsium palustre*, *Equisetum arvense*, *Holcus lanatus*, *Hypericum tetrapterum*, ***Juncus articulatus***, *Mentha aquatica*, *Molinia caerulea* agg., *Nasturtium officinale*, *Palustriella commutata* agg., ***Philonotis calcarea***, *Prunella vulgaris*, *Schoenus nigricans*, ***Succisa pratensis***, *Taraxacum* sect. *Taraxacum*

Constant species: ***Agrostis stolonifera***, *Aneura pinguis*, ***Bryum pseudotriquetrum* agg.**, ***Calliergonella cuspidata***, *Cardamine pratensis* agg., ***Carex flacca***, ***Carex flava* agg.**, *Carex panicea*, *Cirsium palustre*, *Cratoneuron filicinum*, ***Festuca rubra* agg.**, *Holcus lanatus*, ***Juncus articulatus***, *Mentha aquatica*, ***Palustriella commutata* agg.**, *Pellia endiviifolia*, *Philonotis calcarea*, *Succisa pratensis*, *Taraxacum* sect. *Taraxacum*

Dominant species: *Palustriella commutata* agg.

Cluster 4

Interpretation: *Philonotidion seriatae*

Plot sizes: 1–5 m²

Number of relevés: 45

Diagnostic species: *Deschampsia cespitosa*, *Philonotis fontana* agg., *Saxifraga stellaris*, *Scapania uliginosa*, *Scapania undulata*, *Veronica serpyllifolia*, *Warnstorfia exannulata*

Constant species: ***Deschampsia cespitosa***, *Dichodontium palustre*, *Festuca rubra* agg.,

Chrysosplenium oppositifolium, ***Philonotis fontana* agg.**, ***Saxifraga stellaris***, ***Scapania undulata***, *Sphagnum auriculatum* agg., *Stellaria alsine*

Dominant species: -

Cluster 5

Interpretation: ~ *Epilobio nutantis*-*Montion*

Plot sizes: 1–16 m²

Number of relevés: 65

Diagnostic species: *Brachythecium rivulare*, *Bryum weigeli*, *Cardamine pratensis* agg., *Dichodontium palustre*, *Epilobium anagallidifolium*, *Galium palustre* agg., *Holcus mollis*, *Chiloscyphus polyanthos* agg., *Chrysosplenium oppositifolium*, ***Montia fontana***, *Myosotis secunda*, *Philonotis fontana* agg., *Rumex acetosa*, ***Stellaria alsine***, *Trifolium repens*

Constant species: *Agrostis stolonifera*, *Brachythecium rivulare*, *Bryum pseudotriquetrum* agg.,

Calliergonella cuspidata, *Cardamine pratensis* agg., *Dichodontium palustre*, *Epilobium anagallidifolium*, *Festuca rubra* agg., *Chiloscyphus polyanthos* agg., ***Chrysosplenium oppositifolium***,

Juncus bulbosus, ***Montia fontana***, ***Philonotis fontana* agg.**, *Poa trivialis*, *Sagina procumbens*, *Saxifraga stellaris*, *Scapania undulata*, ***Stellaria alsine***

Dominant species: *Philonotis fontana* agg.

Cluster 6

Interpretation: *Anthelion julaceae*

Plot sizes: 1–4 m²

Number of relevés: 30

Diagnostic species: *Agrostis vinealis*, ***Anthelia julacea***, *Campylopus atrovirens*, *Deschampsia cespitosa*, ***Marsupella emarginata***, *Nardus stricta*, ***Narthecium ossifragum***, *Pinguicula vulgaris* agg., *Racomitrium fasciculare*, ***Racomitrium lanuginosum***, *Scapania undulata*, ***Sphagnum auriculatum* agg.**, *Warnstorfia sarmentosa*

Constant species: ***Anthelia julacea***, *Carex flava* agg., ***Deschampsia cespitosa***, ***Marsupella emarginata***, *Nardus stricta*, *Narthecium ossifragum*, *Philonotis fontana* agg., *Pinguicula vulgaris* agg., ***Racomitrium lanuginosum***, *Saxifraga stellaris*, ***Scapania undulata***, ***Sphagnum auriculatum* agg.**, *Warnstorfia sarmentosa*

Dominant species: *Anthelia julacea*

Cluster 7

Interpretation: *Koenigio-Microjuncion*

Plot sizes: 1–4 m²

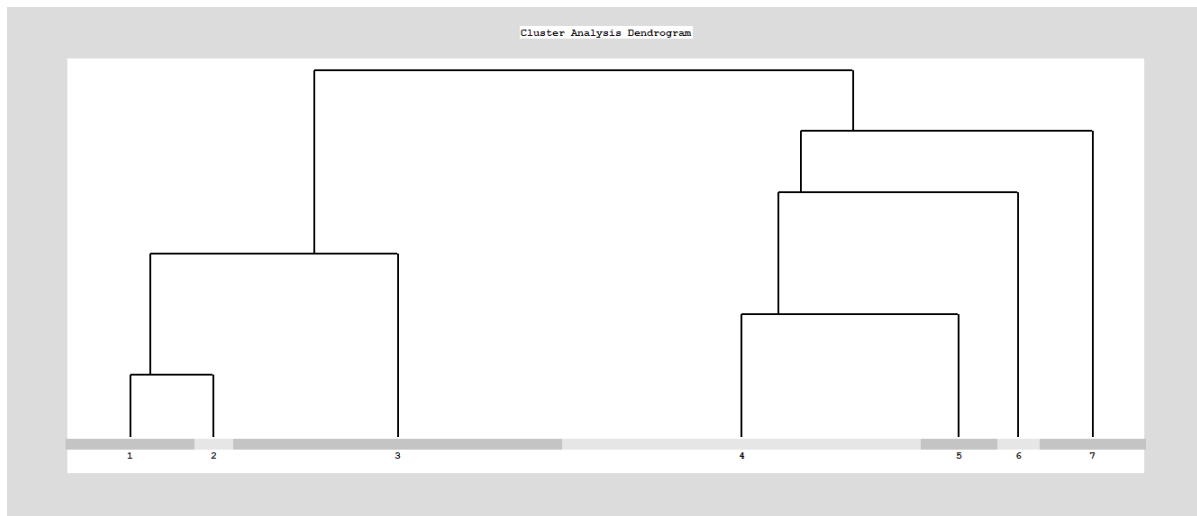
Number of relevés: 13

Diagnostic species: *Agrostis canina*, ***Blindia acuta***, *Euphrasia scottica*, ***Juncus triglumis***, ***Koenigia islandica***, ***Sagina procumbens***, ***Sedum villosum***, *Triglochin palustris*

Constant species: *Agrostis canina*, ***Blindia acuta***, *Carex flava* agg., *Festuca vivipara*, ***Juncus triglumis***, ***Koenigia islandica***, *Montia fontana*, ***Sagina procumbens***, ***Saxifraga stellaris***, *Sedum villosum*, *Triglochin palustris*

Dominant species: -

2.2 Cluster analysis



Cluster 1

Interpretation: *Lycopodo-Cratoneurion commutati*, cluster 1

Plot sizes: 2–4 m²

Number of relevés: 34

Diagnostic species: *Arrhenatherum elatius*, *Brachypodium sylvaticum*, *Brachythecium rivulare*, *Carex remota*, *Conocephalum conicum*, *Cratoneuron filicinum*, *Equisetum telmateia*, ***Geranium robertianum***, *Hedera helix*, *Palustriella commutata* agg., *Pellia endiviifolia*, *Phyllitis scolopendrium*, *Platyhypnidium riparioides*

Constant species: ***Agrostis stolonifera***, *Brachythecium rivulare*, *Cardamine pratensis* agg., *Carex remota*, *Cratoneuron filicinum*, *Eucladium verticillatum*, ***Geranium robertianum***, *Hedera helix*, ***Palustriella commutata* agg.**, *Pellia endiviifolia*

Dominant species: ***Palustriella commutata* agg.**

Cluster 2

Interpretation: *Lycopodo-Cratoneurion commutati*, cluster 2

Plot sizes: 4 m²

Number of relevés: 11

Diagnostic species: ***Didymodon tophaceus***, ***Eucladium verticillatum***

Constant species: ***Agrostis stolonifera***, ***Didymodon tophaceus***, ***Eucladium verticillatum***, *Festuca rubra* agg., ***Palustriella commutata* agg.**, *Pellia endiviifolia*, *Thamnobryum alopecurum*

Dominant species: ***Eucladium verticillatum***, *Palustriella commutata* agg.

Cluster 3

Interpretation: ~ *Cratoneurion commutati*

Plot sizes: 0.25–9 m²

Number of relevés: 88

Diagnostic species: *Anagallis tenella*, *Aneura pinguis*, *Breutelia chrysocoma*, *Bryum pseudotriquetrum* agg., *Calliergonella cuspidata*, *Campylium stellatum* agg., ***Carex flacca***, ***Carex panicea***, *Cirsium palustre*, *Ctenidium molluscum*, *Juncus articulatus*, *Palustriella commutata* agg., *Philonotis calcarea*, *Prunella vulgaris*, ***Saxifraga aizoides***, *Succisa pratensis*

Constant species: ***Agrostis stolonifera***, *Aneura pinguis*, ***Bryum pseudotriquetrum* agg.**, *Calliergonella cuspidata*, *Cardamine pratensis* agg., ***Carex flacca***, *Carex flava* agg., *Carex panicea*, *Cirsium palustre*, *Cratoneuron filicinum*, ***Festuca rubra* agg.**, *Juncus articulatus*, ***Palustriella commutata* agg.**, *Pellia endiviifolia*, *Saxifraga aizoides*

Dominant species: ***Palustriella commutata*** agg.

Cluster 4

Interpretation: ~ *Epilobio nutantis*-*Montion*

Plot sizes: 1–16 m²

Number of relevés: 97

Diagnostic species: *Anthoxanthum odoratum* agg., *Caltha palustris*, ***Dichodontium palustre***, *Epilobium alsinifolium*, *Epilobium anagallidifolium*, *Chiloscyphus polyanthos* agg., *Chrysosplenium oppositifolium*, *Montia fontana*., *Pellia epiphylla* agg., *Philonotis fontana*, *Rhizomnium punctatum*, *Rumex acetosa*, *Stellaria alsine*, *Trifolium repens*, *Warnstorfia exannulata*

Constant species: *Agrostis stolonifera*, *Brachythecium rivulare*, *Bryum pseudotriquetrum* agg., *Calliergonella cuspidata*, *Cardamine pratensis* agg., *Deschampsia cespitosa*, *Dichodontium palustre*, *Festuca rubra* agg., *Chrysosplenium oppositifolium*, *Juncus bulbosus*, ***Montia fontana***, ***Philonotis fontana***, *Sagina procumbens*, *Saxifraga stellaris*, *Scapania undulata*, *Stellaria alsine*

Dominant species: *Philonotis fontana*

Cluster 5

Interpretation: *Philonotidion seriatae*

Plot sizes: 1–4 m²

Number of relevés: 20

Diagnostic species: *Cerastium cerastoides*, *Deschampsia cespitosa*, *Nardia compressa*, *Pohlia wahlenbergii*, *Saxifraga stellaris*, *Scapania undulata*

Constant species: ***Deschampsia cespitosa***, ***Philonotis fontana***, *Pohlia wahlenbergii*, ***Saxifraga stellaris***, ***Scapania undulata***

Dominant species: *Pohlia wahlenbergii*, *Scapania undulata*

Cluster 6

Interpretation: *Koenigio*-*Microjuncion*

Plot sizes: 1–4 m²

Number of relevés: 12

Diagnostic species: ***Agrostis canina***, *Blindia acuta*, ***Juncus triglumis***, ***Koenigia islandica***, ***Sagina procumbens***, ***Sedum villosum***, ***Triglochin palustris***

Constant species: *Agrostis canina*, *Blindia acuta*, *Carex flava* agg., ***Juncus triglumis***, ***Koenigia islandica***, *Montia fontana*, ***Sagina procumbens***, ***Saxifraga stellaris***, *Sedum villosum*, *Triglochin palustris*

Dominant species: -

Cluster 7

Interpretation: *Anthelion julaceae*

Plot sizes: 1–4 m²

Number of relevés: 28

Diagnostic species: *Agrostis vinealis*, ***Anthelia julacea***, *Campylopus atrovirens*, *Deschampsia cespitosa*, ***Marsupella emarginata***, *Mylia taylorii*, *Nardus stricta*, ***Narthecium ossifragum***, *Pinguicula vulgaris*, *Racomitrium fasciculare*, ***Racomitrium lanuginosum***, *Scapania undulata*, ***Sphagnum auriculatum*** agg., *Warnstorfia sarmentosa*

Constant species: ***Anthelia julacea***, *Carex flava* agg., *Deschampsia cespitosa*, ***Marsupella emarginata***, *Nardus stricta*, *Narthecium ossifragum*, *Philonotis fontana*, *Pinguicula vulgaris*, ***Racomitrium lanuginosum***, *Saxifraga stellaris*, ***Scapania undulata***, ***Sphagnum auriculatum*** agg., *Warnstorfia sarmentosa*

Dominant species: ***Anthelia julacea***

3. the Carpathians

3.1 Isopam

Cluster 1

Interpretation: *Cratoneuro filicini-Calthion laetae*

Plot sizes: 1–25 m²

Number of relevés: 120

Diagnostic species: -

Constant species: *Alchemilla vulgaris* agg., *Bryum pseudotriquetrum* agg., ***Caltha palustris***, ***Cardamine amara***, ***Deschampsia cespitosa***, *Epilobium alsinifolium*, *Myosotis scorpioides* agg., *Philonotis seriata*, *Silene pusilla*, *Viola biflora*

Dominant species: *Caltha palustris*, *Cardamine amara*

Cluster 2

Interpretation: *Philonotidion seriatae*

Plot sizes: 0.25–25 m²

Number of relevés: 148

Diagnostic species: *Epilobium nutans*, *Luzula alpinopilosa*, ***Philonotis seriata***, *Plantago gentianoides*, *Saxifraga stellaris*, *Scapania undulata*, *Warnstorfia exannulata*

Constant species: *Alchemilla vulgaris* agg., ***Caltha palustris***, *Cardamine amara*, ***Deschampsia cespitosa***, *Ligusticum mutellina*, *Luzula alpinopilosa*, ***Philonotis seriata***, ***Saxifraga stellaris***, *Scapania undulata*, *Silene pusilla*, *Viola biflora*

Dominant species: *Philonotis seriata*, *Saxifraga stellaris*

Cluster 3

Interpretation: *Cratoneurion commutati*

Plot sizes: 0.5–20 m²

Number of relevés: 99

Diagnostic species: *Achillea oxyloba*, *Alchemilla vulgaris* agg., *Bistorta vivipara*, *Cardamine rivularis*, *Deschampsia cespitosa*, *Doronicum carpaticum*, *Epilobium alsinifolium*, *Juncus triglumis*, *Palustriella commutata* agg., *Parnassia palustris*, *Pinguicula vulgaris*, ***Saxifraga aizoides***, ***Silene pusilla***, *Swertia perennis*, *Viola biflora*

Constant species: ***Alchemilla vulgaris* agg.**, ***Bryum pseudotriquetrum* agg.**, ***Caltha palustris***, *Cardamine rivularis*, ***Deschampsia cespitosa***, *Doronicum carpaticum*, *Epilobium alsinifolium*, *Chaerophyllum hirsutum*, *Ligusticum mutellina*, ***Palustriella commutata* agg.**, *Parnassia palustris*, ***Saxifraga aizoides***, ***Silene pusilla***, *Swertia perennis*, ***Viola biflora***

Dominant species: *Palustriella commutata* agg., *Saxifraga aizoides*

Cluster 4

Interpretation: *Lycopodo-Cratoneurion commutati*

Plot sizes: 0.5–25 m²

Number of relevés: 215

Diagnostic species: *Bryum pseudotriquetrum* agg., *Carex flava* agg., *Mentha longifolia*, ***Palustriella commutata* agg.**

Constant species: ***Bryum pseudotriquetrum* agg.**, *Caltha palustris*, *Cardamine amara*, *Carex flava* agg., *Cratoneuron filicinum*, *Crepis paludosa*, *Deschampsia cespitosa*, *Chaerophyllum hirsutum*, ***Palustriella commutata* agg.**

Dominant species: ***Palustriella commutata* agg.**

Cluster 5

Interpretation: *Caricion remotae*, cluster 1

Plot sizes: 1–25 m²

Number of relevés: 211

Diagnostic species: *Cardamine amara*, *Chrysosplenium alternifolium*

Constant species: *Brachythecium rivulare*, ***Caltha palustris***, ***Cardamine amara***, *Deschampsia cespitosa*, *Chaerophyllum hirsutum*, ***Chrysosplenium alternifolium***, *Impatiens noli-tangere*, *Myosotis scorpioides* agg., *Ranunculus repens*, *Rhizomnium punctatum*, *Stellaria nemorum*

Dominant species: ***Cardamine amara***

Cluster 6

Interpretation: *Caricion remotae*, cluster 2

Plot sizes: 1–25 m²

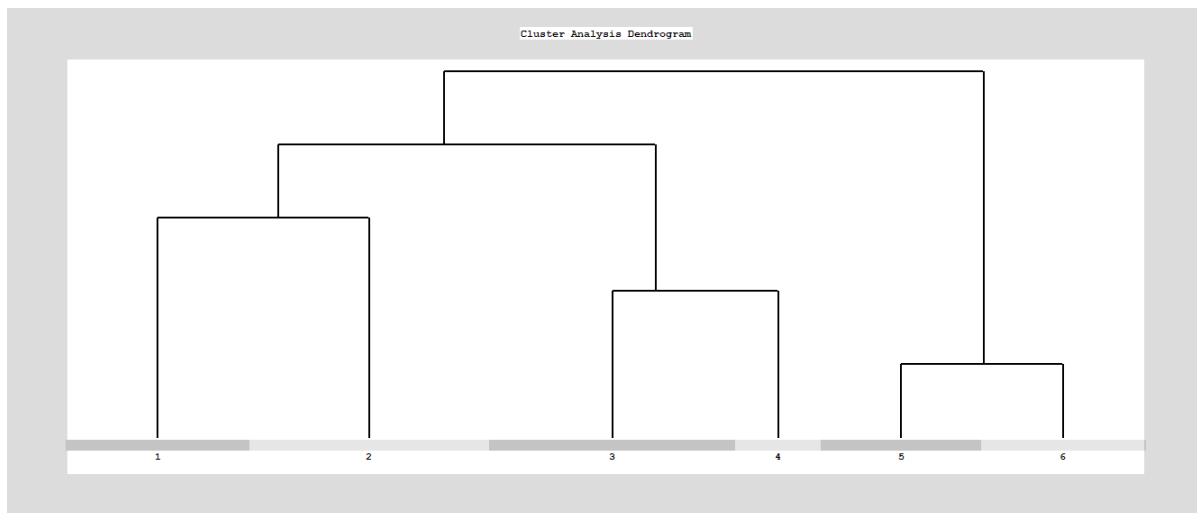
Number of relevés: 143

Diagnostic species: *Ajuga reptans*, ***Athyrium filix-femina***, *Atrichum undulatum*, *Brachypodium sylvaticum*, *Brachythecium rivulare*, ***Carex remota***, *Carex sylvatica*, *Circaea lutetiana*, *Galium odoratum*, *Geranium robertianum*, *Chrysosplenium alternifolium*, ***Impatiens noli-tangere***, *Lamium galeobdolon*, *Lysimachia nemorum*, ***Oxalis acetosella***, *Petasites albus*, *Plagiomnium undulatum*, *Ranunculus repens*, *Rhizomnium punctatum*, *Senecio nemorensis* agg., *Stachys sylvatica*, *Veronica montana*

Constant species: ***Athyrium filix-femina***, ***Brachythecium rivulare***, *Caltha palustris*, ***Cardamine amara***, ***Carex remota***, *Carex sylvatica*, *Conocephalum conicum*, *Geranium robertianum*, *Chaerophyllum hirsutum*, ***Chrysosplenium alternifolium***, ***Impatiens noli-tangere***, *Lysimachia nemorum*, *Myosotis scorpioides* agg., *Oxalis acetosella*, ***Petasites albus***, *Plagiomnium undulatum*, *Ranunculus repens*, *Rhizomnium punctatum*, *Senecio nemorensis* agg., *Stellaria nemorum*

Dominant species: *Carex remota*

3.2 Cluster analysis



Cluster 1

Interpretation: *Caricion remotae*, cluster 1

Plot sizes: 1–25 m²

Number of relevés: 159

Diagnostic species: *Cardamine amara*, *Galium uliginosum*, *Chrysosplenium alternifolium*, *Stellaria nemorum*

Constant species: *Brachythecium rivulare*, ***Caltha palustris***, ***Cardamine amara***, *Deschampsia cespitosa*, *Chaerophyllum hirsutum*, *Chrysosplenium alternifolium*, *Myosotis scorpioides* agg., ***Stellaria nemorum***

Dominant species: ***Cardamine amara***

Cluster 2

Interpretation: *Caricion remotae*, cluster 2

Plot sizes: 1–25 m²

Number of relevés: 212

Diagnostic species: *Ajuga reptans*, ***Athyrium filix-femina***, *Atrichum undulatum*, *Brachypodium sylvaticum*, *Brachythecium rivulare*, *Cardamine amara*, ***Carex remota***, *Carex sylvatica*, *Circaea lutetiana*, *Galium odoratum*, *Geranium robertianum*, *Chrysosplenium alternifolium*, ***Impatiens noli-tangere***, *Lamium galeobdolon*, *Lycopus europaeus*, *Lysimachia nemorum*, *Lysimachia nummularia*, ***Oxalis acetosella***, *Oxyrrhynchium hians*, *Pellia epiphylla* agg., *Petasites albus*, *Plagiomnium undulatum*, *Ranunculus repens*, *Rhizomnium punctatum*, *Senecio nemorensis* agg., *Schedonorus giganteus*, *Solanum dulcamara*, *Stachys sylvatica*, *Urtica dioica*, *Veronica montana*

Constant species: ***Athyrium filix-femina***, ***Brachythecium rivulare***, ***Caltha palustris***, ***Cardamine amara***, ***Carex remota***, *Carex sylvatica*, *Geranium robertianum*, *Chaerophyllum hirsutum*, ***Chrysosplenium alternifolium***, ***Impatiens noli-tangere***, *Lysimachia nemorum*, *Myosotis scorpioides* agg., *Oxalis acetosella*, *Petasites albus*, *Plagiomnium undulatum*, *Ranunculus repens*, *Rhizomnium punctatum*, *Senecio nemorensis* agg., *Stellaria nemorum*, *Urtica dioica*

Dominant species: -

Cluster 3

Interpretation: *Cratoneuro filicini-Calthion laetae*

Plot sizes: 0.5–25 m²

Number of relevés: 214

Diagnostic species: *Jacobaea subalpina*, *Ligusticum mutellina*, *Luzula alpinopilosa*, *Scapania undulata*

Constant species: *Alchemilla vulgaris* agg., *Bryum pseudotriquetrum* agg., ***Caltha palustris***, *Cardamine amara*, ***Deschampsia cespitosa***, *Epilobium alsinifolium*, *Ligusticum mutellina*, *Philonotis seriata*, *Scapania undulata*, *Viola biflora*

Dominant species: *Caltha palustris*

Cluster 4

Interpretation: *Philonotidion seriatae*

Plot sizes: 0.25–25 m²

Number of relevés: 77

Diagnostic species: *Chrysosplenium alpinum*, *Oxytropis jacquinii*, ***Philonotis seriata***, *Plantago gentianoides*, ***Saxifraga stellaris***

Constant species: *Caltha palustris*, *Cardamine amara*, *Deschampsia cespitosa*, ***Philonotis seriata***, ***Saxifraga stellaris***, *Silene pusilla*, *Viola biflora*

Dominant species: *Philonotis seriata*, ***Saxifraga stellaris***

Cluster 5

Interpretation: *Cratoneurion commutati*

Plot sizes: 1–25 m²

Number of relevés: 139

Diagnostic species: *Achillea oxyloba*, *Alchemilla vulgaris* agg., *Bistorta vivipara*, *Cardamine rivularis*, *Deschampsia cespitosa*, *Doronicum carpaticum*, *Epilobium alsinifolium*, *Juncus triglumis*, *Palustriella commutata* agg., *Parnassia palustris*, *Pinguicula alpina*, *Pinguicula vulgaris* agg., ***Saxifraga aizoides***, *Silene pusilla*, *Swertia perennis*, *Viola biflora*

Constant species: *Alchemilla vulgaris* agg., *Bryum pseudotriquetrum* agg., *Caltha palustris*, *Cardamine rivularis*, ***Deschampsia cespitosa***, *Doronicum carpaticum*, *Epilobium alsinifolium*, *Chaerophyllum hirsutum*, ***Palustriella commutata* agg.**, *Parnassia palustris*, *Saxifraga aizoides*, *Silene pusilla*, *Swertia perennis*, ***Viola biflora***

Dominant species: *Palustriella commutata* agg., *Saxifraga aizoides*

Cluster 6

Interpretation: *Lycopodo-Cratoneurion commutati*

Plot sizes: 0.56–25 m²

Number of relevés: 144

Diagnostic species: *Agrostis stolonifera*, *Bryum pseudotriquetrum* agg., *Cardamine pratensis* agg., *Carex flacca*, *Carex flava* agg., *Cochlearia pyrenaica*, *Crepis paludosa*, *Equisetum arvense*, *Eupatorium cannabinum*, *Festuca rubra* agg., *Juncus articulatus*, *Mentha longifolia*, ***Palustriella commutata* agg.**, *Triglochin palustris*, *Tussilago farfara*

Constant species: *Agrostis stolonifera*, ***Bryum pseudotriquetrum* agg.**, *Caltha palustris*, *Cardamine pratensis* agg., *Carex flava* agg., *Crepis paludosa*, *Deschampsia cespitosa*, *Chaerophyllum hirsutum*, ***Palustriella commutata* agg.**, *Tussilago farfara*

Dominant species: ***Palustriella commutata* agg.**

4. Fennoscandia and Iceland

4.1 Isopam

Cluster 1

Interpretation: *Caricion remotae*

Plot sizes: 0.25–20 m²

Number of relevés: 44

Diagnostic species: ***Athyrium filix-femina***, ***Brachythecium rivulare***, *Calamagrostis purpurea*, *Cirsium palustre*, *Climacium dendroides*, *Crepis paludosa*, *Dactylorhiza maculata* agg., *Dryopteris carthusiana*, ***Equisetum sylvaticum***, *Filipendula ulmaria*, *Galium palustre* agg., *Geum rivale*, *Gymnocarpium dryopteris*, *Hylocomium splendens*, *Chiloscyphus polyanthos* agg., *Maianthemum bifolium*, ***Oxalis acetosella***, *Paris quadrifolia*, *Plagiochila asplenioides*, ***Plagiomnium affine* agg.**, *Pseudobryum cinclidioides*, ***Rhizomnium magnifolium***, *Rhizomnium punctatum*, *Silene flos-cuculi*, ***Sphagnum squarrosum***, *Trientalis europaea*, *Vaccinium vitis-idaea*, *Viola rupestris*

Constant species: *Athyrium filix-femina*, ***Brachythecium rivulare***, *Crepis paludosa*, *Deschampsia cespitosa*, ***Equisetum sylvaticum***, *Galium palustre* agg., *Chiloscyphus polyanthos* agg., *Maianthemum bifolium*, *Oxalis acetosella*, ***Plagiomnium affine* agg.**, *Pseudobryum cinclidioides*, ***Rhizomnium magnifolium***, *Sphagnum squarrosum*

Dominant species: *Rhizomnium magnifolium*

Cluster 2

Interpretation: ? *Philonotidion seriatae*

Plot sizes: 0.25–25 m²

Number of relevés: 78

Diagnostic species: *Philonotis fontana* agg., *Saxifraga stellaris*

Constant species: *Cerastium cerastoides*, *Deschampsia cespitosa*, *Epilobium alsinifolium*, *Epilobium hornemannii*, *Equisetum arvense*, *Montia fontana*, ***Philonotis fontana* agg.**, *Phleum alpinum* agg., *Pohlia wahlenbergii*, *Saxifraga stellaris*, *Warnstorfia exannulata*

Dominant species: ***Philonotis fontana* agg.**

Cluster 3

Interpretation: *Koenigia-Microjuncion*

Plot sizes: 0.25–20 m²

Number of relevés: 39

Diagnostic species: *Agrostis stolonifera*, *Bryum archangelicum*, *Calliergon giganteum*, *Calliergonella cuspidata*, *Carex nigra*, *Comarum palustre*, *Dicranella crispera*, *Epilobium palustre*, *Equisetum palustre*, *Eriophorum angustifolium*, *Festuca vivipara*, *Juncus alpinoarticulatus*, *Juncus biglumis*, *Juncus triglumis*, ***Koenigia islandica***, *Luzula spicata*, *Pohlia filum*, *Ranunculus reptans*, *Sagina nodosa*, *Sedum villosum*, ***Triglochin palustris***

Constant species: *Agrostis stolonifera*, *Bistorta vivipara*, *Bryum pseudotriquetrum* agg., *Calliergon giganteum*, *Calliergonella cuspidata*, *Carex nigra*, *Epilobium palustre*, *Equisetum palustre*, *Eriophorum angustifolium*, *Festuca vivipara*, *Juncus alpinoarticulatus*, *Juncus biglumis*, *Juncus triglumis*, *Koenigia islandica*, ***Philonotis fontana* agg.**, *Sedum villosum*, *Triglochin palustris*

Dominant species: -

Cluster 4

Interpretation: *Mniobryo-Epilobion hornemannii*

Plot sizes: 0.25–25 m²

Number of relevés: 89

Diagnostic species: *Bryum weigelii*, *Cerastium cerastoides*, *Epilobium anagallidifolium*, ***Epilobium hornemannii***, *Pohlia wahlenbergii*, *Ranunculus pygmaeus*, *Scapania paludosa*, *Veronica alpina*

Constant species: *Bryum weigelii*, *Cerastium cerastoides*, ***Epilobium hornemannii***, *Equisetum arvense*, *Philonotis fontana* agg., ***Pohlia wahlenbergii***, *Saxifraga stellaris*, *Scapania paludosa*, *Warnstorfia exannulata*

Dominant species: ***Pohlia wahlenbergii***

Cluster 5

Interpretation: *Cratoneurion commutati*

Plot sizes: 0.25–23 m²

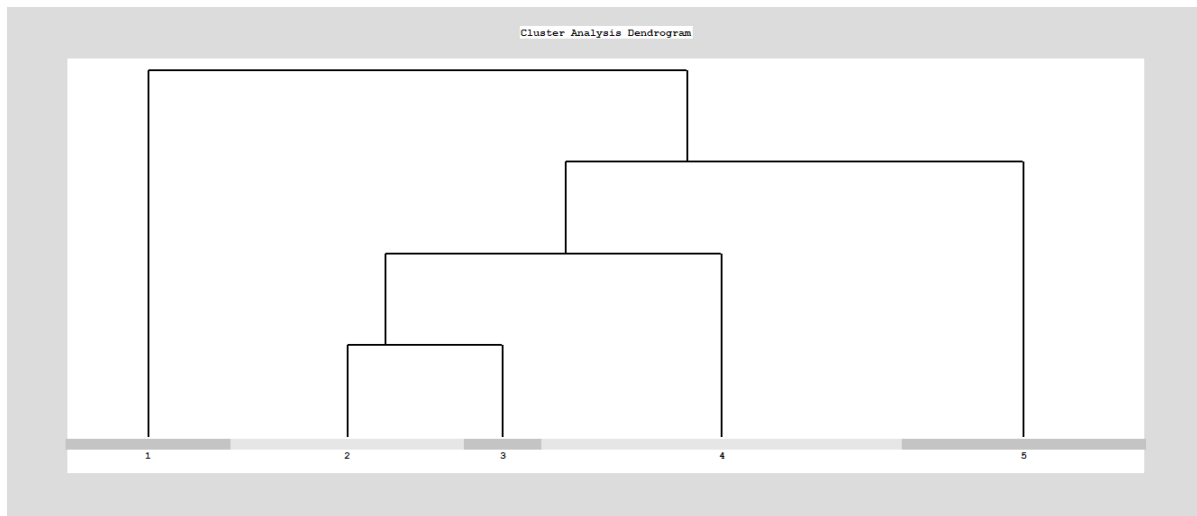
Number of relevés: 48

Diagnostic species: *Bistorta vivipara*, *Bryum pseudotriquetrum* agg., *Campylium stellatum* agg., *Carex dioica*, *Carex vaginata*, *Cochlearia groenlandica*, *Cystopteris montana*, *Equisetum arvense*, *Equisetum variegatum*, *Festuca rubra* agg., *Mesoptychia bantriensis*, ***Palustriella commutata* agg.**, *Palustriella decipiens*, *Philonotis calcarea*, *Saccobasis polita*, ***Saussurea alpina***, ***Saxifraga aizoides***, *Stellaria nemorum*, *Thalictrum alpinum*, *Tussilago farfara*, *Viola biflora*

Constant species: ***Bistorta vivipara***, ***Bryum pseudotriquetrum* agg.**, ***Deschampsia cespitosa***, ***Epilobium alsinifolium***, ***Equisetum arvense***, ***Equisetum variegatum***, ***Palustriella commutata* agg.**, *Palustriella decipiens*, *Philonotis fontana* agg., *Poa alpina*, *Saussurea alpina*, *Saxifraga aizoides*, *Stellaria nemorum*, *Thalictrum alpinum*, *Viola biflora*

Dominant species: ***Palustriella commutata* agg.**

4.2 Cluster analysis



Cluster 1

Interpretation: ~*Caricion remotae*

Plot sizes: 1–20 m²

Number of relevés: 45

Diagnostic species: *Angelica sylvestris*, ***Athyrium filix-femina***, ***Brachythecium rivulare***, *Calamagrostis purpurea*, *Cardamine amara*, *Cirsium palustre*, *Climacium dendroides*, *Crepis paludosa*, *Dactylorhiza maculata* agg., *Dicranum scoparium*, *Dryopteris carthusiana*, ***Equisetum sylvaticum***, *Filipendula ulmaria*, ***Galium palustre* agg.**, *Geum rivale*, *Gymnocarpium dryopteris*, *Hylocomium splendens*, ***Chiloscyphus polyanthos* agg.**, *Maianthemum bifolium*, *Myosotis scorpioides* agg., ***Oxalis acetosella***, *Paris quadrifolia*, *Plagiochila asplenoides*, ***Plagiomnium affine* agg.**, *Pleurozium schreberi*, *Pseudobryum cinclidioides*, ***Rhizomnium magnifolium***, *Rhizomnium punctatum*, *Silene flos-cuculi*, *Sphagnum recurvum* agg., ***Sphagnum squarrosum***, *Sphagnum warnstorffii*, *Trientalis europaea*, *Trichocolea tomentella*, *Vaccinium myrtillus*, *Vaccinium vitis-idaea*, *Viola rupestris*

Constant species: *Athyrium filix-femina*, ***Brachythecium rivulare***, *Crepis paludosa*, *Deschampsia cespitosa*, ***Equisetum sylvaticum***, *Galium palustre* agg., *Chiloscyphus polyanthos* agg., *Maianthemum bifolium*, *Oxalis acetosella*, ***Plagiomnium affine* agg.**, *Pseudobryum cinclidioides*, ***Rhizomnium magnifolium***, *Sphagnum squarrosum*, *Vaccinium vitis-idaea*

Dominant species: -

Cluster 2

Interpretation: *Koenigio-Microjuncion*

Plot sizes: 0.25–25 m²

Number of relevés: 65

Diagnostic species: *Agrostis stolonifera*, *Calliergon giganteum*, *Calliergonella cuspidata*, *Cardamine nymanii*, *Carex nigra*, *Cerastium fontanum*, *Epilobium palustre*, *Equisetum palustre*, *Eriophorum angustifolium*, *Eriophorum scheuchzeri*, *Festuca vivipara*, *Juncus alpinoarticulatus*, *Juncus triglumis*, ***Koenigia islandica***, *Luzula spicata*, ***Montia fontana***, *Philonotis fontana* agg., *Philonotis seriata*, *Sagina nodosa*, *Sagina procumbens*, ***Sedum villosum***, ***Triglochin palustris***

Constant species: *Agrostis stolonifera*, *Bistorta vivipara*, *Bryum pseudotriquetrum* agg., *Calliergonella cuspidata*, *Cardamine nymanii*, *Carex nigra*, *Cerastium cerastoides*, *Cerastium fontanum*, *Deschampsia cespitosa*, *Epilobium palustre*, *Equisetum arvense*, *Equisetum palustre*, *Eriophorum angustifolium*, *Juncus triglumis*, *Montia fontana*, ***Philonotis fontana* agg.**, *Phleum alpinum* agg., *Pohlia wahlenbergii*, *Saxifraga stellaris*, *Sedum villosum*, *Triglochin palustris*, *Warnstorfia exannulata*

Dominant species: *Philonotis fontana* agg.

Cluster 3

Interpretation: ? *Philonotidion seriatae*

Plot sizes: 0.25–25 m²

Number of relevés: 21

Diagnostic species: *Avenella flexuosa*, *Empetrum nigrum* agg., *Epilobium anagallidifolium*, *Harpanthus flotovianus*, *Oxyria digyna*, *Poa alpina*, *Ranunculus pygmaeus*, *Saxifraga cernua*, *Saxifraga stellaris*, *Scapania uliginosa*, *Scorzoneroides autumnalis*, *Sibbaldia procumbens*, *Taraxacum* sect. *Taraxacum*, *Veronica alpina*, *Viola biflora*

Constant species: *Avenella flexuosa*, *Bistorta vivipara*, *Cerastium cerastoides*, *Deschampsia cespitosa*, *Epilobium anagallidifolium*, *Equisetum arvense*, *Harpanthus flotovianus*, *Oxyria digyna*, *Philonotis fontana* agg., *Poa alpina*, *Pohlia wahlenbergii*, *Ranunculus pygmaeus*, *Saxifraga cernua*, *Saxifraga stellaris*, *Scapania paludosa*, *Scapania uliginosa*, *Taraxacum* sect. *Taraxacum*, *Veronica alpina*, *Viola biflora*, *Warnstorfia exannulata*

Dominant species: *Scapania uliginosa*

Cluster 4

Interpretation: *Mniobryo-Epilobion hornemannii*

Plot sizes: 0.25–25 m²

Number of relevés: 100

Diagnostic species: *Bryum weigelii*, *Epilobium hornemannii*, *Pohlia wahlenbergii*

Constant species: *Bryum weigelii*, *Cerastium cerastoides*, *Epilobium hornemannii*, *Philonotis fontana* agg., *Pohlia wahlenbergii*, *Saxifraga stellaris*, *Scapania paludosa*, *Warnstorfia exannulata*

Dominant species: *Philonotis fontana* agg., *Pohlia wahlenbergii*

Cluster 5

Interpretation: *Cratoneurion commutati*

Plot sizes: 0.25–25 m²

Number of relevés: 67

Diagnostic species: *Angelica archangelica*, *Bistorta vivipara*, *Bryum pseudotriquetrum* agg., *Cystopteris montana*, *Epilobium alsinifolium*, *Equisetum arvense*, *Equisetum variegatum*, *Festuca rubra* agg., *Mesoptychia bantriensis*, *Palustriella commutata* agg., *Palustriella decipiens*, *Philonotis calcarea*, *Saussurea alpina*, *Saxifraga aizoides*, *Stellaria nemorum*, *Thalictrum alpinum*

Constant species: *Bistorta vivipara*, *Bryum pseudotriquetrum* agg., *Deschampsia cespitosa*, *Epilobium alsinifolium*, *Equisetum arvense*, *Palustriella commutata* agg., *Palustriella decipiens*, *Philonotis fontana* agg., *Poa alpina*, *Pohlia wahlenbergii*, *Saussurea alpina*, *Saxifraga aizoides*, *Stellaria nemorum*, *Viola biflora*

Dominant species: *Palustriella commutata* agg.

5. Balkan Peninsula

5.1 Isopam

Cluster 1

Interpretation: *Caricion remotae*

Plot sizes: 2.5–25 m²

Number of relevés: 17

Diagnostic species: *Athyrium filix-femina*, *Brachythecium rivulare*, *Cardamine amara*, *Carex remota*, *Carex strigosa*, *Epilobium obscurum*, *Glyceria notata*, *Chaerophyllum hirsutum*, *Chrysosplenium alternifolium*, *Lamium galeobdolon*, *Myosotis scorpioides* agg., *Plagiomnium affine* agg.,

Plagiomnium undulatum, *Poa trivialis*, **Ranunculus repens**, *Solanum dulcamara*, *Stachys sylvatica*, *Stellaria nemorum*, *Urtica dioica*, *Veronica beccabunga*

Constant species: *Agrostis stolonifera*, *Athyrium filix-femina*, **Brachythecium rivulare**, *Caltha palustris*, **Cardamine amara**, *Carex remota*, *Cratoneuron filicinum*, *Chaerophyllum hirsutum*, *Chrysosplenium alternifolium*, *Lamium galeobdolon*, **Myosotis scorpioides** agg., *Philonotis seriata*, *Plagiomnium affine* agg., **Plagiomnium undulatum**, *Poa trivialis*, **Ranunculus repens**, *Rhizomnium punctatum*, *Stellaria nemorum*, *Veronica beccabunga*

Dominant species: *Brachythecium rivulare*, **Cardamine amara**

Cluster 2

Interpretation: *Philonotidion seriatae*, cluster 1

Plot sizes: 0.25–23 m²

Number of relevés: 42

Diagnostic species: *Agrostis canina*, *Anthoxanthum odoratum* agg., *Carex nigra*, *Dichodontium palustre*, *Luzula campestris* agg., *Philonotis seriata*, *Pinguicula balcanica*, *Taraxacum* sect. *Alpina*

Constant species: *Agrostis canina*, *Alchemilla vulgaris* agg., *Anthoxanthum odoratum* agg., *Bryum pseudotriquetrum* agg., *Caltha palustris*, *Cardamine rivularis*, *Carex nigra*, **Deschampsia cespitosa**, *Dichodontium palustre*, *Epilobium alsinifolium*, *Festuca rubra* agg., *Geum coccineum*, *Ligusticum mutellina*, *Luzula campestris* agg., *Nardus stricta*, *Palustriella decipiens*, **Philonotis seriata**, **Pinguicula balcanica**, *Saxifraga stellaris*, *Silene pusilla*, **Taraxacum** sect. *Alpina*

Dominant species: *Philonotis seriata*

Cluster 3

Interpretation: *Philonotidion seriatae*, cluster 2

Plot sizes: 0.6–16 m²

Number of relevés: 46

Diagnostic species: *Cardamine rivularis*, **Cerastium cerastoides**, *Deschampsia cespitosa*, *Epilobium nutans*, *Philonotis seriata*, *Plagiothecium denticulatum*, *Plantago gentianoides*, **Saxifraga stellaris**

Constant species: *Brachythecium rivulare*, *Cardamine rivularis*, *Carex nigra*, *Cerastium cerastoides*, **Deschampsia cespitosa**, *Epilobium alsinifolium*, *Epilobium nutans*, *Festuca rubra* agg., *Ligusticum mutellina*, *Nardus stricta*, **Philonotis seriata**, *Plantago gentianoides*, **Saxifraga stellaris**, *Silene pusilla*, *Taraxacum* sect. *Alpina*, *Warnstorfia exannulata*

Dominant species: *Philonotis seriata*, *Saxifraga stellaris*

Cluster 4

Interpretation: *Lycopodo-Cratoneurion commutati*, cluster 1

Plot sizes: 1–20 m²

Number of relevés: 54

Diagnostic species: *Blackstonia perfoliata*, *Briza media*, *Carex distans*, *Carex flacca*, *Dactylorhiza maculata* agg., *Didymodon tophaceus*, *Epilobium parviflorum*, *Eucladium verticillatum*, *Eupatorium cannabinum*, *Holcus lanatus*, *Ononis spinosa*, **Palustriella commutata** agg., *Pellia endiviifolia*, *Pinguicula hirtiflora*, *Schedonorus arundinaceus*, *Tussilago farfara*

Constant species: *Agrostis stolonifera*, *Bryum pseudotriquetrum* agg., *Eucladium verticillatum*, *Juncus articulatus*, **Palustriella commutata** agg., *Pellia endiviifolia*, *Philonotis calcarea*, *Tussilago farfara*

Dominant species: **Palustriella commutata** agg.

Cluster 5

Interpretation: *Lycopodo-Cratoneurion commutati*, cluster 2

Plot sizes: 0.5–25 m²

Number of relevés: 31

Diagnostic species: *Angelica sylvestris*, *Cardamine flexuosa*, **Cardamine plumierii**, *Carex paniculata*, *Cinclidotus aquaticus*, *Cirsium alsophilum*, *Cratoneuron filicinum*, **Filipendula ulmaria**, **Fissidens**

adianthoides, *Galium divaricatum*, *Luzula pilosa*, *Platyhypnidium riparioides*, *Rhizomnium punctatum*, *Scrophularia umbrosa*, *Thuidium tamariscinum*

Constant species: *Agrostis stolonifera*, ***Angelica sylvestris***, *Bryum pseudotriquetrum* agg., *Cardamine plumierii*, *Carex paniculata*, ***Cratoneuron filicinum***, *Deschampsia cespitosa*, *Filipendula ulmaria*, *Fissidens adianthoides*, *Platyhypnidium riparioides*, *Rhizomnium punctatum*

Dominant species: ***Cratoneuron filicinum***

Cluster 6

Interpretation: *Cratoneurion commutati* (– *Cratoneuro filicini-Calthion laetae*)

Plot sizes: 2–25 m²

Number of relevés: 30

Diagnostic species: *Alchemilla vulgaris* agg., *Bryum mildeanum*, *Bryum pseudotriquetrum* agg., ***Cardamine acris***, ***Carex ferruginea***, *Carex sempervirens*, *Cirsium appendiculatum*, *Euphrasia minima*, *Juncus alpinoarticulatus*, *Palustriella commutata* agg., *Parnassia palustris*, *Pinguicula balcanica*, *Saxifraga aizoides*, *Scorzoneroides autumnalis*, *Selaginella selaginoides*, ***Silene pusilla***, *Trifolium badium*, *Veratrum album* agg., *Willemetia stipitata*

Constant species: ***Alchemilla vulgaris* agg.**, ***Bryum pseudotriquetrum* agg.**, *Caltha palustris*, ***Cardamine acris***, *Carex ferruginea*, *Carex flava* agg., *Carex sempervirens*, ***Cirsium appendiculatum***, *Dactylorhiza cordigera*, ***Deschampsia cespitosa***, *Epilobium alsinifolium*, *Festuca rubra* agg., *Juncus alpinoarticulatus*, *Ligusticum mutellina*, *Nardus stricta*, ***Palustriella commutata* agg.**, *Palustriella decipiens*, ***Parnassia palustris***, *Philonotis calcarea*, ***Pinguicula balcanica***, *Plantago gentianoides*, *Saxifraga aizoides*, *Scorzoneroides autumnalis*, ***Silene pusilla***, *Veratrum album* agg., *Willemetia stipitata*

Dominant species: ***Palustriella commutata* agg.**

Cluster 7

Interpretation: ?

Plot sizes: 2–16 m²

Number of relevés: 16

Diagnostic species: *Alchemilla vulgaris* agg., ***Blysmus compressus***, *Calliergonella cuspidata*, *Carex echinata*, *Carex flava* agg., ***Cynosurus cristatus***, *Dactylorhiza cordigera*, *Epilobium palustre*, *Equisetum palustre*, *Eriophorum latifolium*, *Galium palustre* agg., *Geum coccineum*, *Juncus alpinoarticulatus*, ***Juncus articulatus***, *Juncus effusus*, *Leontodon hispidus*, ***Prunella vulgaris***, *Sagina procumbens*, ***Trifolium hybridum***

Constant species: ***Alchemilla vulgaris* agg.**, ***Blysmus compressus***, *Brachythecium rivulare*, *Bryum pseudotriquetrum* agg., *Calliergonella cuspidata*, *Caltha palustris*, ***Carex echinata***, *Carex flava* agg., *Carex nigra*, ***Cynosurus cristatus***, *Dactylorhiza cordigera*, *Deschampsia cespitosa*, *Epilobium palustre*, *Equisetum palustre*, *Eriophorum latifolium*, *Festuca rubra* agg., *Galium palustre* agg., ***Geum coccineum***, *Juncus alpinoarticulatus*, ***Juncus articulatus***, *Juncus effusus*, *Leontodon hispidus*, *Myosotis scorpioides* agg., *Nardus stricta*, *Palustriella decipiens*, *Parnassia palustris*, *Philonotis calcarea*, *Philonotis fontana* agg., ***Prunella vulgaris***, *Sagina procumbens*, *Trifolium hybridum*, *Trifolium pratense*, *Willemetia stipitata*

Dominant species: *Palustriella decipiens*, *Philonotis fontana* agg.

Cluster 8

Interpretation: ~ *Cratoneuro filicini-Calthion laetae*

Plot sizes: 3–16 m²

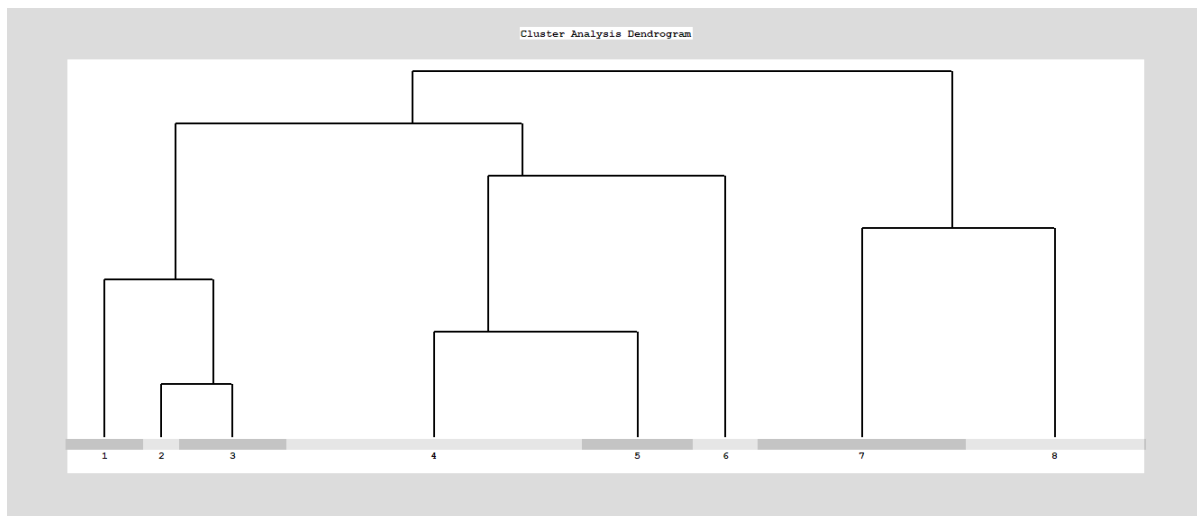
Number of relevés: 21

Diagnostic species: *Caltha palustris*, *Cardamine amara*, *Epilobium alsinifolium*

Constant species: *Alchemilla vulgaris* agg., *Brachythecium rivulare*, ***Caltha palustris***, *Cardamine acris*, ***Cardamine amara***, ***Deschampsia cespitosa***, ***Epilobium alsinifolium***, *Myosotis scorpioides* agg., *Philonotis seriata*, *Saxifraga stellaris*

Dominant species: *Caltha palustris*, *Cardamine amara*

5.2 Cluster analysis



Cluster 1

Interpretation: ?

Plot sizes: 0.5–10 m²

Number of relevés: 18

Diagnostic species: *Angelica sylvestris*, *Cardamine plumierii*, *Carex disticha*, *Carex paniculata*, *Cirsium alsophilum*, *Cratoneuron filicinum*, *Didymodon icmadophilus*, *Filipendula ulmaria*, *Fissidens adianthoides*, *Galium divaricatum*, *Luzula pilosa*, *Potentilla erecta*, *Thuidium tamariscinum*

Constant species: *Agrostis stolonifera*, *Angelica sylvestris*, *Athyrium filix-femina*, *Bryum pseudotriquetrum* agg., *Caltha palustris*, *Cardamine plumierii*, *Carex paniculata*, *Cirsium alsophilum*, *Cratoneuron filicinum*, *Deschampsia cespitosa*, *Filipendula ulmaria*, *Fissidens adianthoides*, *Galium divaricatum*, *Juncus articulatus*, *Luzula pilosa*, *Potentilla erecta*, *Rhizomnium punctatum*

Dominant species: *Cratoneuron filicinum*

Cluster 2

Interpretation: ?

Plot sizes: 9–25 m²

Number of relevés: 9

Diagnostic species: *Cinclidotus aquaticus*, *Cratoneuron filicinum*, *Oxyrrhynchium hians*, *Petasites kablikianus*, *Plagiomnium undulatum*, *Platyhypnidium riparioides*

Constant species: *Cardamine acris*, *Cinclidotus aquaticus*, *Cratoneuron filicinum*, *Epilobium alsinifolium*, *Geranium robertianum*, *Chrysosplenium alternifolium*, *Oxyrrhynchium hians*, *Palustriella commutata* agg., *Petasites kablikianus*, *Plagiomnium undulatum*, *Platyhypnidium riparioides*, *Rhizomnium punctatum*, *Stellaria nemorum*

Dominant species: *Platyhypnidium riparioides*

Cluster 3

Interpretation: *Caricion remotae*

Plot sizes: 1–20 m²

Number of relevés: 25

Diagnostic species: *Athyrium filix-femina*, *Brachythecium rivulare*, *Caltha palustris*, *Cardamine flexuosa*, *Carex remota*, *Carex strigosa*, *Conocephalum conicum*, *Glechoma hederacea* agg., *Chaerophyllum hirsutum*, *Chrysosplenium alternifolium*, *Impatiens noli-tangere*, *Lactuca muralis*,

Lamium galeobdolon, *Lysimachia nummularia*, *Myosotis scorpioides* agg., *Plagiomnium undulatum*, **Ranunculus repens**, *Rhizomnium punctatum*, *Rumex conglomeratus*, *Scrophularia umbrosa*, *Solanum dulcamara*, *Stachys sylvatica*, *Veronica beccabunga*, *Veronica montana*

Constant species: *Agrostis stolonifera*, *Athyrium filix-femina*, **Brachythecium rivulare**, **Caltha palustris**, *Cardamine amara*, *Conocephalum conicum*, *Cratoneuron filicinum*, *Deschampsia cespitosa*, *Geranium robertianum*, *Chaerophyllum hirsutum*, **Chrysosplenium alternifolium**, **Lamium galeobdolon**, **Myosotis scorpioides** agg., *Plagiomnium undulatum*, **Ranunculus repens**, **Rhizomnium punctatum**, *Veronica beccabunga*

Dominant species: -

Cluster 4

Interpretation: ~ *Philonotidion seriatae*, cluster 1

Plot sizes: 1–16 m²

Number of relevés: 71

Diagnostic species: *Agrostis canina*, *Anthoxanthum odoratum* agg., *Carex nigra*, *Cerastium cerastoides*, *Dactylorhiza cordigera*, *Dichodontium palustre*, *Geum coccineum*, *Juncus filiformis*, *Luzula campestris* agg., *Nardus stricta*, *Philonotis seriata*, *Pinguicula balcanica*, *Prunella vulgaris*, *Sagina procumbens*, *Taraxacum* sect. *Alpina*, *Trifolium hybridum*, *Warnstorfia exannulata*

Constant species: *Agrostis canina*, *Bryum pseudotriquetrum* agg., *Caltha palustris*, *Cardamine rivularis*, *Carex echinata*, **Carex nigra**, **Deschampsia cespitosa**, *Dichodontium palustre*, *Festuca rubra* agg., *Geum coccineum*, *Nardus stricta*, *Palustriella decipiens*, **Philonotis seriata**, *Pinguicula balcanica*, *Saxifraga stellaris*, *Taraxacum* sect. *Alpina*, *Warnstorfia exannulata*

Dominant species: *Philonotis seriata*

Cluster 5

Interpretation: *Philonotidion seriatae*, cluster 2

Plot sizes: 0.6–16 m²

Number of relevés: 26

Diagnostic species: *Racomitrium sudeticum*, **Saxifraga stellaris**

Constant species: *Alchemilla vulgaris* agg., *Bryum pseudotriquetrum* agg., *Cardamine rivularis*, *Carex nigra*, **Deschampsia cespitosa**, **Epilobium alsinifolium**, *Festuca rubra* agg., *Nardus stricta*, *Palustriella decipiens*, **Philonotis seriata**, **Saxifraga stellaris**, *Silene pusilla*

Dominant species: **Saxifraga stellaris**

Cluster 6

Interpretation: ~ *Cratoneuro filicini-Calthion laetae*

Plot sizes: 2.5–25 m²

Number of relevés: 16

Diagnostic species: *Brachythecium rivulare*, **Cardamine amara**, *Glyceria notata*, *Myosotis scorpioides* agg., *Poa trivialis*

Constant species: **Brachythecium rivulare**, *Caltha palustris*, **Cardamine amara**, **Deschampsia cespitosa**, *Epilobium alsinifolium*, *Myosotis scorpioides* agg., **Philonotis seriata**, *Poa trivialis*

Dominant species: *Brachythecium rivulare*, **Cardamine amara**

Cluster 7

Interpretation: *Cratoneurion commutati*

Plot sizes: 3–25 m²

Number of relevés: 49

Diagnostic species: *Alchemilla vulgaris* agg., *Bryum pseudotriquetrum* agg., *Cardamine acris*, *Carex ferruginea*, *Carex sempervirens*, *Cirsium appendiculatum*, *Euphrasia minima*, *Gentianella bulgarica*, *Juncus alpinoarticulatus*, *Ligusticum mutellina*, *Palustriella commutata* agg., *Parnassia palustris*,

Pinguicula balcanica, *Saxifraga aizoides*, *Scorzoneroideis autumnalis*, *Selaginella selaginoides*, *Silene pusilla*, *Trifolium badium*, *Veratrum album* agg., *Willemetia stipitata*

Constant species: *Alchemilla vulgaris* agg., ***Bryum pseudotriquetrum* agg.**, *Caltha palustris*, ***Cardamine acris***, *Carex ferruginea*, *Carex sempervirens*, *Cirsium appendiculatum*, ***Deschampsia cespitosa***, *Epilobium alsinifolium*, *Festuca rubra* agg., *Juncus alpinoarticulatus*, *Ligusticum mutellina*, *Nardus stricta*, ***Palustriella commutata* agg.**, *Palustriella decipiens*, ***Parnassia palustris***, *Philonotis calcarea*, *Philonotis seriata*, ***Pinguicula balcanica***, *Plantago gentianoides*, *Scorzoneroideis autumnalis*, ***Silene pusilla***, *Veratrum album* agg., *Willemetia stipitata*

Dominant species: *Palustriella commutata* agg.

Cluster 8

Interpretation: ~ *Lycopodo-Cratoneurion commutati*

Plot sizes: 1–16 m²

Number of relevés: 43

Diagnostic species: *Blackstonia perfoliata*, *Briza media*, *Carex distans*, *Carex flacca*, *Dactylorhiza maculata* agg., ***Didymodon tophaceus***, *Epilobium parviflorum*, *Epipactis palustris*, *Equisetum ramosissimum*, ***Eucladium verticillatum***, *Eupatorium cannabinum*, *Holcus lanatus*, *Juncus inflexus*, *Linum catharticum*, *Molinia caerulea* agg., *Ononis spinosa*, *Palustriella commutata* agg., *Pellia endiviifolia*, *Pinguicula hirtiflora*, *Schedonorus arundinaceus*, *Tussilago farfara*

Constant species: *Agrostis stolonifera*, *Bryum pseudotriquetrum* agg., *Carex distans*, *Didymodon tophaceus*, *Eucladium verticillatum*, *Juncus articulatus*, ***Palustriella commutata* agg.**, *Pellia endiviifolia*, *Philonotis calcarea*, *Pinguicula hirtiflora*, *Tussilago farfara*

Dominant species: ***Palustriella commutata* agg.**

6. Iberian Peninsula

6.1 Isopam

Cluster 1

Interpretation: *Caricion remotae*

Plot sizes: 1–25 m²

Number of relevés: 48

Diagnostic species: *Athyrium filix-femina*, ***Cardamine flexuosa***, ***Cardamine raphanifolia***, *Carex remota*, ***Conocephalum conicum***, *Dryopteris affinis* agg., *Dumortiera hirsuta*, *Fissidens polyphyllus*, *Geranium robertianum*, *Helosciadium nodiflorum*, *Hypericum androsaemum*, *Chaerophyllum hirsutum*, ***Chrysosplenium oppositifolium***, *Kindbergia praelonga*, *Luzula sylvatica*, ***Lysimachia nemorum***, *Mnium stellare*, ***Oxalis acetosella***, *Pellia epiphylla* agg., ***Plagiomnium undulatum***, *Polystichum setiferum*, *Rhizomnium punctatum*, *Saxifraga clusii*, *Saxifraga hirsuta*, *Sibthorpia europaea*, *Soldanella villosa*, *Valeriana pyrenaica*

Constant species: *Brachythecium rivulare*, *Cardamine flexuosa*, ***Cardamine raphanifolia***, *Conocephalum conicum*, ***Chrysosplenium oppositifolium***, *Lysimachia nemorum*, *Oxalis acetosella*, *Plagiomnium undulatum*, ***Stellaria alsine***

Dominant species: *Cardamine raphanifolia*, *Chrysosplenium oppositifolium*

Cluster 2

Interpretation: *Cardamino-Cratoneuretalia*

Plot sizes: 0.25–18 m²

Number of relevés: 51

Diagnostic species: *Anagallis tenella*, *Aneura pinguis*, *Briza media*, *Carex flacca*, *Carex flava* agg., *Cratoneuron filicinum*, *Eucladium verticillatum*, *Genista hispanica*, *Helictochloa pratensis*, *Linum*

catharticum, *Molinia caerulea* agg., ***Palustriella commutata* agg.**, *Parnassia palustris*, *Pellia endiviifolia*, *Philonotis calcarea*, *Pinguicula grandiflora*, *Samolus valerandi*, *Veronica ponae*
Constant species: *Anagallis tenella*, *Carex flava* agg., ***Palustriella commutata* agg.**, *Parnassia palustris*, *Philonotis calcarea*, *Pinguicula grandiflora*
Dominant species: ***Palustriella commutata* agg.**

Cluster 3

Interpretation: *Philonotidion seriatae*, cluster 1

Plot sizes: 0.3–10 m²

Number of relevés: 63

Diagnostic species: *Bryum schleicheri*, *Epilobium alsinifolium*, *Philonotis seriata*, ***Saxifraga stellaris***, *Sedum melanantherum*, *Sedum villosum*, *Veronica alpina*, *Warnstorfia exannulata*

Constant species: *Bryum schleicheri*, *Carex nigra*, *Cerastium cerastoides*, ***Epilobium alsinifolium***, *Montia fontana*, ***Philonotis seriata***, ***Saxifraga stellaris***, *Stellaria alsine*

Dominant species: *Philonotis seriata*, *Saxifraga stellaris*

Cluster 4

Interpretation: ? *Philonotidion seriatae*, cluster 2

Plot sizes: 1–20 m²

Number of relevés: 28

Diagnostic species: *Alchemilla vulgaris* agg., *Brachythecium rivulare*, *Cardamine amara*, *Epilobium alsinifolium*, *Luzula desvauxii*, *Ochlopoa supina*, *Philonotis seriata*, ***Saxifraga aquatica***

Constant species: ***Brachythecium rivulare***, *Cerastium cerastoides*, ***Epilobium alsinifolium***, *Ochlopoa supina*, *Philonotis seriata*, ***Saxifraga aquatica***, *Saxifraga stellaris*

Dominant species: ***Saxifraga aquatica***

Cluster 5

Interpretation: ?

Plot sizes: 1–20 m²

Number of relevés: 38

Diagnostic species: *Agrostis canina*, *Carex echinata*, ***Nardus stricta***, ***Philonotis fontana* agg.**, *Trichophorum cespitosum*, *Veronica serpyllifolia*

Constant species: *Carex flava* agg., *Carex nigra*, *Nardus stricta*, ***Philonotis fontana* agg.**, ***Saxifraga stellaris***, *Stellaria alsine*, *Viola palustris*

Dominant species: ***Philonotis fontana* agg.**, *Saxifraga stellaris*

Cluster 6

Interpretation: ~ *Epilobio nutantis*-*Montion*

Plot sizes: 0.5–20 m²

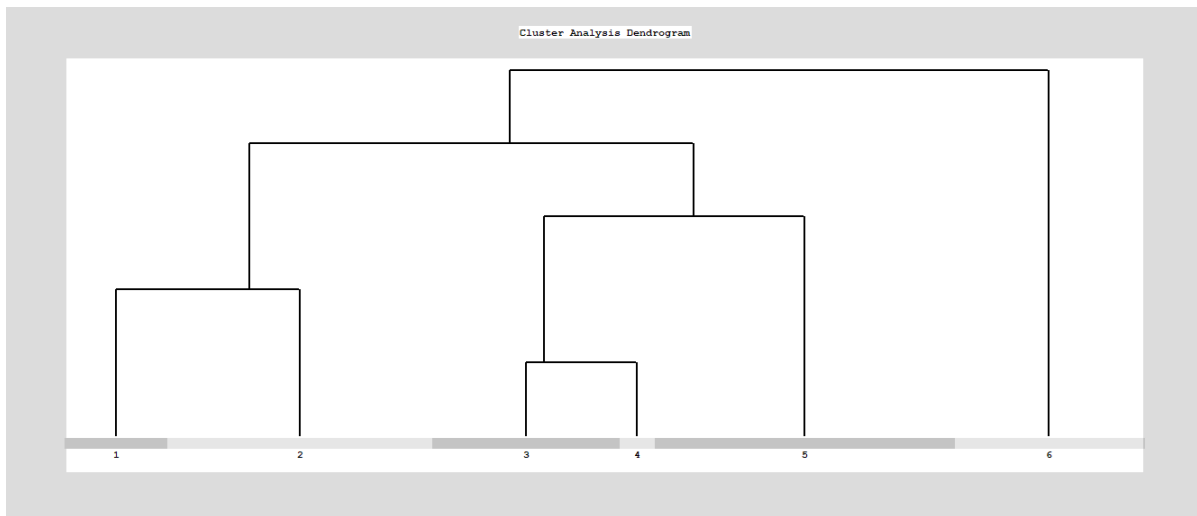
Number of relevés: 39

Diagnostic species: *Epilobium obscurum*, *Epilobium palustre*, *Glyceria declinata*, *Juncus effusus*, *Lotus pedunculatus*, ***Montia fontana***, *Ochlopoa annua*, *Philonotis fontana* agg., *Sagina saginoides*, *Stellaria alsine*

Constant species: *Aulacomnium palustre*, *Caltha palustris*, *Carex nigra*, *Epilobium obscurum*, ***Montia fontana***, *Myosotis stolonifera*, ***Philonotis fontana* agg.**, *Sagina saginoides*, ***Stellaria alsine***

Dominant species: ***Montia fontana***

6.2 Cluster analysis



Cluster 1

Number of relevés: 25

Interpretation: ~ *Philonotidion seriatae*, cluster 1

Plot sizes: 4–20 m²

Diagnostic species: *Brachythecium rivulare*, *Bryum torquescens*, *Cardamine amara*, *Epilobium alsinifolium*, *Festuca rubra* agg., *Luzula desvauxii*, ***Ochlopoa supina***, *Philonotis seriata*, ***Saxifraga aquatica***

Constant species: ***Brachythecium rivulare***, *Cerastium cerastoides*, ***Epilobium alsinifolium***, *Festuca rubra* agg., ***Ochlopoa supina***, *Philonotis seriata*, ***Saxifraga aquatica***, *Saxifraga stellaris*

Dominant species: ***Saxifraga aquatica***

Cluster 2

Interpretation: *Philonotidion seriatae*, cluster 2

Plot sizes: 0.3–10 m²

Number of relevés: 66

Diagnostic species: ***Bryum schleicheri***, *Carex nigra*, *Epilobium alsinifolium*, *Montia fontana*, *Philonotis seriata*, *Rumex acetosa*, ***Saxifraga stellaris***, *Sedum melanatherum*, *Sedum villosum*, *Veronica alpina*, *Warnstorfia exannulata*

Constant species: ***Bryum schleicheri***, *Carex nigra*, *Cerastium cerastoides*, ***Epilobium alsinifolium***, *Montia fontana*, ***Philonotis seriata***, *Sagina saginoides*, ***Saxifraga stellaris***, *Sedum melanatherum*, *Stellaria alsine*

Dominant species: *Philonotis seriata*, *Saxifraga stellaris*

Cluster 3

Interpretation: ~ *Cratoneurion commutati*

Plot sizes: 0.5–18 m²

Number of relevés: 46

Diagnostic species: *Aneura pinguis*, *Briza media*, *Carex flava* agg., *Carex frigida*, *Carex sempervirens*, *Crepis paludosa*, *Juncus articulatus*, *Mentha longifolia*, ***Palustriella commutata* agg.**, ***Parnassia palustris***, ***Philonotis calcarea***, *Pinguicula grandiflora*, *Primula integrifolia*, *Rhinanthus minor*, *Saxifraga aizoides*, *Veronica ponae*

Constant species: *Bryum pseudotriquetrum* agg., *Carex flava* agg., ***Palustriella commutata* agg.**, *Parnassia palustris*, *Philonotis calcarea*, *Pinguicula grandiflora*, *Saxifraga aizoides*

Dominant species: ***Palustriella commutata* agg.**

Cluster 4

Interpretation: *Lycopodo-Cratoneurion commutati*

Plot sizes: 0.25–4 m²

Number of relevés: 9

Diagnostic species: *Adiantum capillus-veneris*, **Anagallis tenella**, *Cratoneuron filicinum*, **Eucladium verticillatum**, **Samolus valerandi**

Constant species: *Adiantum capillus-veneris*, **Anagallis tenella**, *Cratoneuron filicinum*, **Eucladium verticillatum**, *Pellia endiviifolia*, **Samolus valerandi**

Dominant species: *Cratoneuron filicinum*, *Eucladium verticillatum*

Cluster 5

Interpretation: ~ *Epilobio nutantis-Montion*

Plot sizes: 0.5–20 m²

Number of relevés: 74

Diagnostic species: *Agrostis canina*, *Carex echinata*, *Epilobium obscurum*, *Juncus bulbosus*, *Montia fontana*, *Myosotis stolonifera*, *Nardus stricta*, **Philonotis fontana** agg., *Sagina saginoides*, *Stellaria alsine*, *Veronica serpyllifolia*

Constant species: *Caltha palustris*, *Carex nigra*, *Montia fontana*, **Philonotis fontana** agg., *Sagina saginoides*, **Stellaria alsine**

Dominant species: *Philonotis fontana* agg.

Cluster 6

Interpretation: *Caricion remotae*

Plot sizes: 1–25 m²

Number of relevés: 47

Diagnostic species: *Athyrium filix-femina*, **Cardamine flexuosa**, **Cardamine raphanifolia**, *Carex remota*, *Cirsium palustre*, *Conocephalum conicum*, *Dryopteris affinis* agg., *Dumortiera hirsuta*, *Fissidens polyphyllus*, *Geranium robertianum*, *Helosciadium nodiflorum*, *Hypericum androsaemum*, *Chaerophyllum hirsutum*, **Chrysosplenium oppositifolium**, *Luzula sylvatica*, *Lysimachia nemorum*, *Mnium stellare*, **Oxalis acetosella**, *Pellia epiphylla* agg., **Plagiomnium undulatum**, *Polystichum setiferum*, *Ranunculus repens*, *Rhizomnium punctatum*, *Saxifraga clusii*, *Saxifraga hirsuta*, *Sibthorpia europaea*, *Soldanella villosa*, *Valeriana pyrenaica*

Constant species: *Brachythecium rivulare*, *Cardamine flexuosa*, **Cardamine raphanifolia**, *Conocephalum conicum*, **Chrysosplenium oppositifolium**, *Lysimachia nemorum*, *Mnium stellare*, *Oxalis acetosella*, *Plagiomnium undulatum*, *Stellaria alsine*

Dominant species: *Cardamine raphanifolia*, *Chrysosplenium oppositifolium*